

What is claimed is:

1. A computer implemented method of creating process models, the method comprising:
  - selecting a generic model for a component represented in a symbolic language;
  - choosing assumptions about a component to be modeled; and
  - applying the assumptions to the symbolic generic model to derive a component specific model reflecting the assumptions.
2. The method of claim 1 wherein the generic model comprises symbolic representations that are environment independent.
3. The method of claim 2 wherein the specific model reflects the environment of the process to be modeled.
4. The method of claim 1 wherein the symbolic language is selected from the group consisting of Mathematica, Axiom, MAPLE and ADIFOR.
5. The method of claim 1 and further comprising maintaining a log of assumptions and applied model transformations.
6. The method of claim 1 wherein the generic model comprises a proper ancestor model.
7. The method of claim 1 wherein the specific model comprises a specific environment model.

8. The method of claim 1 wherein multiple specific models are derived from multiple generic models corresponding to multiple components in a process or manufacturing facility.
9. The method of claim 1 wherein the generic component is a flash column.
10. The method of claim 9 wherein the generic component comprises representations of parameters selected from the group consisting of the rate of change of the mass of vapor, rate of change of the mass of liquid, energy change of the vapor, energy change of the liquid, pressure equilibrium correlation, thermal equilibrium correlation, vapor and liquid enthalpy equations, equal pressure, gas law and volume correlation.
11. A system for creating process models, the system comprising:
  - means for selecting a generic model for a component represented in a symbolic language;
  - means for choosing assumptions about a component to be modeled; and
  - means for applying the assumptions to the symbolic generic model to derive a component specific model reflecting the assumptions.
12. The system of claim 11 wherein the generic model comprises symbolic representations that are environment independent.
13. The system of claim 12 wherein the specific model reflects the environment of the process to be modeled.
14. The system of claim 11 and further comprising maintaining a log of assumptions and applied model transformations.

15. The system of claim 11 wherein the generic model comprises a proper ancestor model.

16. The system of claim 11 wherein the specific model comprises a specific environment model.

17. The system of claim 11 wherein multiple specific models are derived from multiple generic models corresponding to multiple components in a process or manufacturing facility.

18. The system of claim 17 wherein the generic component comprises representations of parameters for a flash column selected from the group consisting of the rate of change of the mass of vapor, rate of change of the mass of liquid, energy change of the vapor, energy change of the liquid, pressure equilibrium correlation, thermal equilibrium correlation, vapor and liquid enthalpy equations, equal pressure, gas law and volume correlation.

19. A computer readable medium having instructions for causing a computer to perform a method of creating process models, the method comprising:

- selecting a generic model for a component represented in a symbolic language;
- choosing assumptions about a component to be modeled; and
- applying the assumptions to the symbolic generic model to derive a component specific model reflecting the assumptions.

20. A development environment for process modeling comprising:

a set of generic models, each comprising a environment independent symbolic representation of a component;

an interface that provides selectable environment specific assumptions for each component to be modeled; and

a set of environment specific representations of the components derived from the generic models based on the assumptions.